Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1. (original) A method for forming a diffusion barrier layer comprising the steps of:

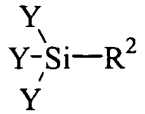
a) preparing a silicon substrate;

b) contacting the silicon substrate with a composition comprising self-assembled monolayer subunits and a solvent; and,

c) removing the solvent

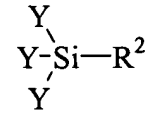
thereby forming the diffusion barrier.

Claim 2. (original) The method according to claim 1, wherein the self-assembled monolayer subunit is of the following structure:



wherein Y is an O-alkyl group, and wherein R^2 is an alkyl group, heteroalkyl group, aryl group or heteroaryl group.

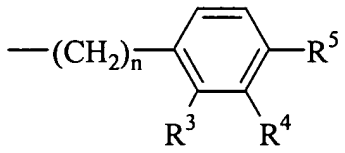
Claim 3. (original) The method according to claim 1 wherein the self-assembled monolayer is of the following subunit wherein Y is a halogen, and and wherein R^2 is an alkyl group, heteroalkyl group, aryl group or heteroaryl group.



Claim 4. (original) The method according to claim 1, wherein the silicon substrate preparation comprises the formation of a silicon oxide surface.

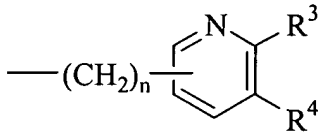
Claim 5. (original) The method according to claim 1, wherein the method further comprises the step of heating the silicon substrate and the composition during contact.

Claim 6. (original) The method according to claim 2, wherein R^2 is an alkyl group of the following structure:



wherein R^3, R^4 and R^5 are independently selected from the group consisting of hydrogen, alkyl groups, heteroalkyl groups, halo groups, NH_2, NHR^6, NR^6R^7, OH, OR^6, SH, SR^6, CHO, COOH and CN, and wherein R^6 and R^7 are alkyl groups, and wherein n is an integer ranging from 1 to 5.

Claim 7. (original) The method according to claim 2, wherein R^2 is an alkyl group of the following structure:



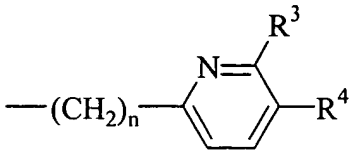
wherein R^3 and R^4 are independently selected from the group consisting of hydrogen, alkyl groups, heteroalkyl groups, halo groups, NH_2, NHR^6, NR^6R^7, OH, OR^6, SH, SR^6, CHO, COOH and CN, and wherein R^6 and R^7 are alkyl groups, and wherein n is an integer ranging from 1 to 5.

Claim 8. (original) The method according to claim 5, wherein Y is OCH_3.

Claim 9. (original) The method according to claim 6, wherein Y is OCH_3.

Claim 10. (original) The method according to claim 7, wherein R^3, R^4 and R^5 are hydrogen and n is 2.

Claim 11. (original) The method according to claim 8, wherein R^2 is an alkyl group of the following structure:



and wherein R^3 and R^4 are hydrogen and n is 2.

Claims 12-23 (canceled).

Claim 24. (new) A method of forming a device, the method comprising:

(a) providing a substrate;

(b) providing a diffusion barrier layer, wherein the diffusion barrier layer comprises a self-assembled monolayer, wherein the self-assembled monolayer is a single layer of molecules, and wherein the molecules in the self-assembled monolayer have first ends attached to the substrate and second ends projecting upward from the substrate; and

(c) forming a metal layer comprising copper on the diffusion barrier layer using a vapor deposition process, wherein the copper in the metal layer is in direct contact with the second ends of the molecules in the self-assembled monolayer.

Claim 25. (new) The method of claim 24 wherein the device is capable of being biased at about 2 MV/cm at about 200 °C for about 30 minutes without diffusion of the copper into the substrate.

Claim 26. (new) The method of claim 24 wherein the substrate comprises silicon oxide on silicon.

Claim 27. (new) The method of claim 24 wherein the molecules have aromatic groups at the first ends of the molecules.

Claim 28. (new) The method of claim 24 wherein the vapor deposition process is a sputtering process.